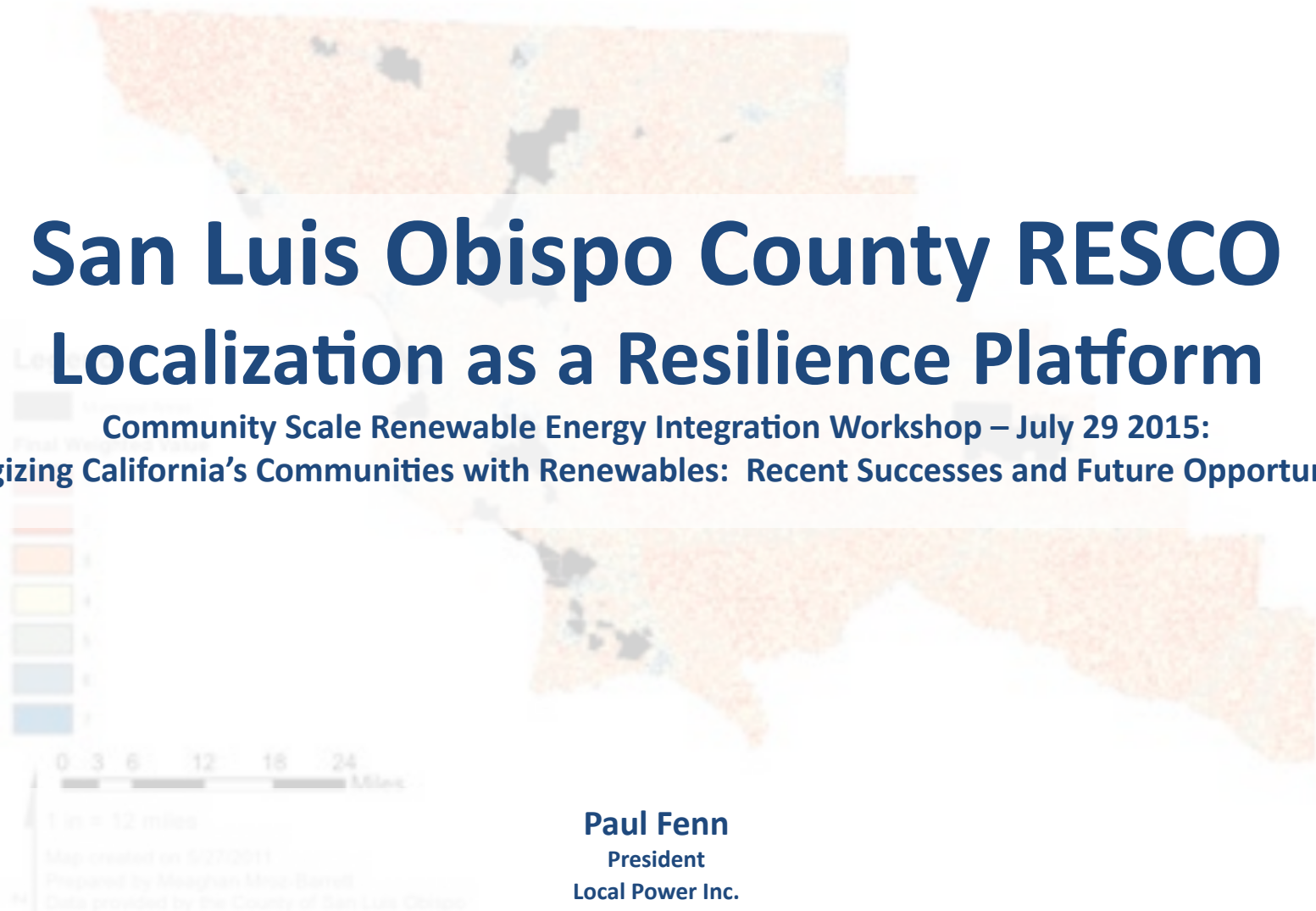


Preliminary Solar Suitability Map Final Weighted Value  
SLO-RESCO

# San Luis Obispo County RESCO

## Localization as a Resilience Platform

Community Scale Renewable Energy Integration Workshop – July 29 2015:  
“Energizing California’s Communities with Renewables: Recent Successes and Future Opportunities”



**Paul Fenn**  
President  
Local Power Inc.  
July 29, 2015

Source: SLO RESCO

# Thanks to California Energy Commission for Funding SLO RESCO

- Public Interest Energy Research (PIER) funding through a statewide competitive solicitation process

# SLO RESCO Project Partners

- **SLORESCO partner organizations:** the San Luis Obispo Air Pollution Control District; the County of San Luis Obispo; and the San Luis Obispo County of Governments.
- **The SLO RESCO Professional Advisory Committee:** Jim Cole, Senior Advisor California, Institute for Energy and the Environment; Jim Patterson, County Supervisor, 5th District, San Luis Obispo; Dr. Julian Crocker, Superintendent of Schools, San Luis Obispo County Office of Education; Margot McDonald, Co-Director, Renewable Energy Institute, California Polytechnic State University; Jackie Crabb, Executive Director SLO County Farm Bureau; Mary Mylan, Vice President Rabobank, Grover Beach; and BK Richard, Board Member, Land Conservancy of SLO County.
- **SLO RESCO partner organization key staff:** Steve Devencenzi, Planning Director, San Luis Obispo County of Governments; Trevor Keith, Energy Programs Coordinator, County of San Luis Obispo; Chuck Stevenson, Long Range Planning Director, County of San Luis Obispo; and Aeron Arlin Genet, Planning and Outreach Manager, SLO County Air Pollution Control District.
- **Support from Cal Poly students:** Ryan Trapp, City and Regional Planning; Cassie Bayer, History/Political Science; Lorna Mosher, Industrial Engineering; Meaghan Mroz-Barrett, City and Regional Planning; Steven Rogers, City and Regional Planning; Hannah Pauling, Architecture; Jared Vidales, Materials Engineering; Austin Schader, Materials Engineering; Ryan Roach, Industrial Engineering; Michael Founds, General Engineering; and Samantha Chaidez, Natural Resources Management.
- **Support from local citizens:** Tom Murray; Ken Haggard; Karen Merriam; Alex Vincent; Steve Ela; Nick Alter; and Greg Ellis, One Cool Earth, and many others

# Key SLO RESCO Stakeholders

Organization	Title	Relevance	Role in SLO RESCO
California Energy Commission	Project Manager	Grantor Project oversight	CEC Project Manager
SLO County	District 5 Supervisor	Political Champion	Project Partner / PAC Member
SLO County	District 5 Legislative Asst.	Assistant to political champion of SLO RESCO project	Project Partner
SLO County - Long Range Planning	Energy Coordinator	Staff champion of SLO RESCO project	Project Partner
SLO County - Long Range Planning	Division Manager	Staff responsible for Long Range Planning priorities	Project Partner
SLO County - Long Range Planning	Senior Planner	Staff responsible for Climate Action Plan	Project Partner
SLO County Facilities	Facilities Manager	Staff responsible for all utilities, projects, and County facilities	Project Partner
SLO County	Supervising Mapping Specialist	Staff support and GIS re	

Organization	Title	Relevance	Role in SLO RESCO
SLO County Air Pollution Control District (APCD)	Planning & Outreach Manager	Protecting air quality and climate for region	Project Partner
SLO County Council of Governments	Planning Director	Regional transportation and land use planning organization	Project Partner
CA Institute for Energy and the Environment, UC	Retired Director	SLO RESCO Senior Advisor	PAC Member / PAC Chair
Cal Poly State University San Luis Obispo	Co-Director Renewable Energy Institute	Cal Poly Academic Representative / Energy Research	PAC Member
Land Conservancy	Board Member	Technical and Environmental Representative	PAC Member
SLO County Farm Bureau	Executive Director	Agricultural Representative	PAC Member
Rabobank Grover Beach	Asst. Vice President / Branch Manager	Financial Representative	PAC Member
SLO County Office of Education	Superintendent of Schools	Educational Representative	PAC Member

Source: SLO RESCO



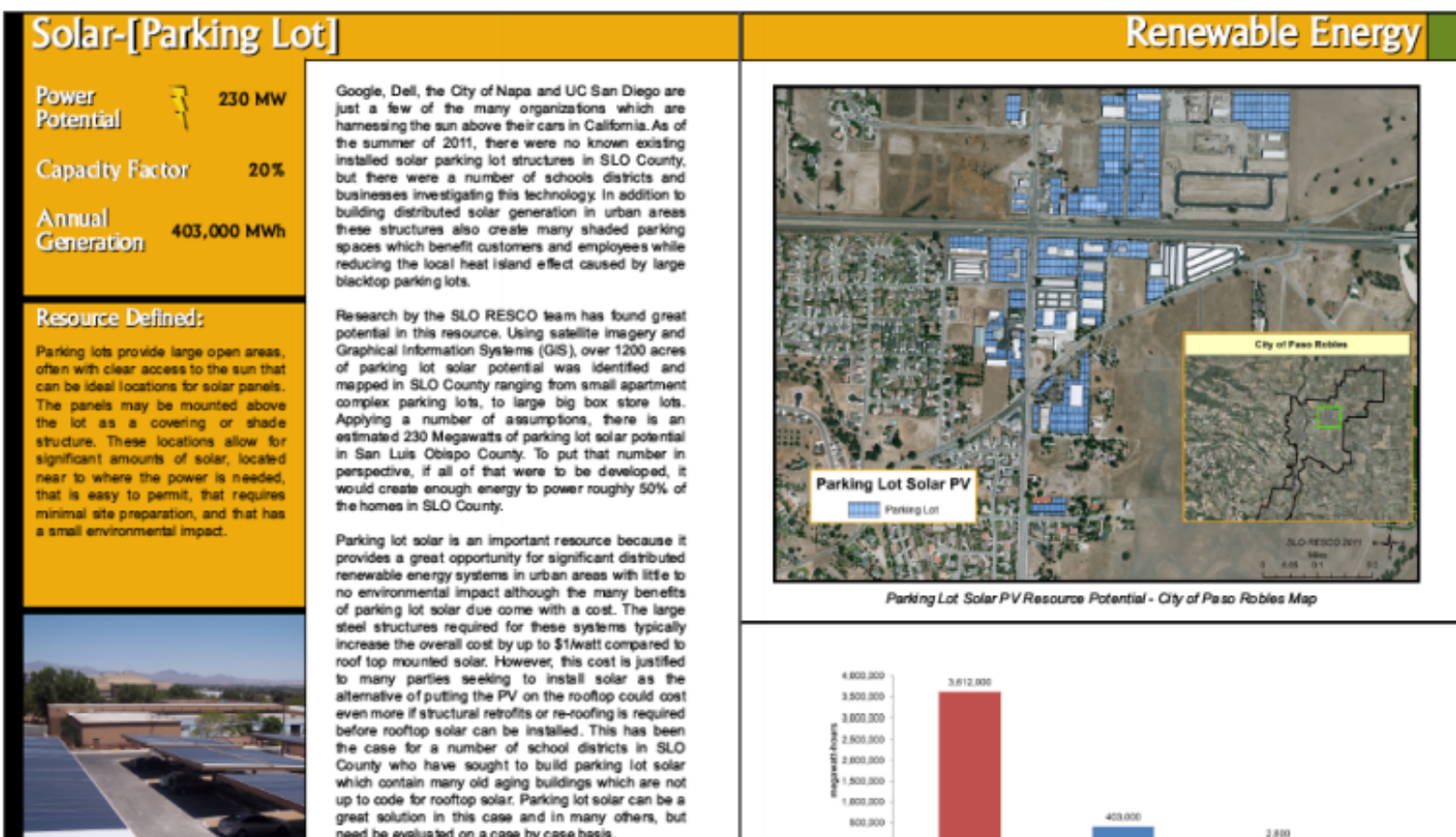
# Engagement of Stakeholders

Event	Format	Date	Audience	Outcome
SLO County Supervisor's RESCO Grant Support Meeting	Meeting	Jan 2009	Met with County Supervisor from each of 5 districts	Introduced RESCO grant opportunity and sought County leadership support
SLO County Staff RESCO Grant Support Meeting	Meeting	Jan 2009	Met with County Planning and Facilities staff	Introduced RESCO grant opportunity and sought County staff support
Arroyo Grande City SLO RESCO Introduction Meeting	Meeting	Nov 2009	Met with the Arroyo Grande Facilities Manager	Explained RESCO concept, learned about AG's efforts regarding energy efficiency and renewables. Learned about their proposed Green Business District and why it failed.
Paso Robles City SLO RESCO Introduction Meeting	Meeting	Oct 2009	Met with Paso Robles's Asst. City Manager	Explained RESCO concept, learned about the city's ongoing efforts with attempting to utilize a local geothermal resource
SLO City SLO RESCO Introduction Meeting	Meeting	Nov 2009	Met with City Utility Manager	Explained RESCO concept, learned about the city's efforts around energy efficiency and their recently commissioned geothermal project

Event	Format	Date	Audience	Outcome
Central Coast Clergy and Laity for Justice-Renewable Energy in Abundance presentation	Presentation and discussion	Sept 2011	Local religious leaders	Explained RESCO concept and discussed centralized vs. decentralized energy systems
Source: SLO RESCO				
Grover Beach SLO RESCO Introduction Meeting	Meeting	Nov 2009	Met with City Planners	Explained RESCO concept, learned about the city's efforts around climate action planning
Morro Bay City SLO RESCO Introduction Meeting	Meeting	Nov 2009	Met with City Planners	Explained RESCO concept, learned about the city's efforts around climate action planning
Pismo Beach City SLO RESCO Introduction Meeting	Meeting	Nov 2009	Met with Facilities Manager	Explained RESCO concept, learned about the city's efforts around energy
SLO-APCD/ SLO RESCO Introduction Meeting	Meeting	Oct 2009	Met with Technical Staff	Explained RESCO concept, learned about the APCD's efforts around climate action planning and greenhouse gas regulation
SLO Green Build/ SLO RESCO Introduction Meeting	Meeting	Nov 2009	Met with President & former President	Explained RESCO concept, learned about the non-profits' efforts around community education and green building
SLO Greenhouse Gas Committee	Presentation	July 2010	Local government representatives, APCD representatives	Explained RESCO concept and delivered project updates
SLO Green Build Learn-Build-Save Event: Zero Net Energy Buildings	Public Presentation	May 2011	Local contractors and building professionals	Explained RESCO concept and delivered project updates. Explained the role Zero Net Energy Buildings play in a RESCO.
Association of Energy Engineers: California's Energy Future Under Governor Brown	Presentation	April 2010	Local energy professionals	Explained RESCO concept and delivered project updates and spoke about California's energy future under Governor Brown
USGBC- SLO RESCO Intro/ Update	Presentation	Feb 2011	Architects and building professionals	Explained RESCO concept and delivered project updates
Cal Poly Experimental Architecture Class (3)	Presentation/ Mentoring	Spring 2011	Architecture and Engineering students	Explained RESCO concept, helped students brainstorm creative ways to display local renewable energy resources through art displays.
Cal Poly City and Regional Planning Classes (3)	Presentation	Dec 2010, March 2011, March, 2012	City and Regional Planning Students	Explained RESCO concept and discussed centralized vs. decentralized energy systems
SLO Bioneers Conference-Renewable Energy in Abundance	Presentation	Oct, 2010	Conference attendees	Explained RESCO concept and discussed centralized vs. decentralized energy systems

# Energy Atlas Presented Facts to Electeds, Staff, the General Public

Figure 134: Screenshot of the SLO RESCO Energy Atlas Publication



Local Power.

# Project Goals and Objectives

- The San Luis Obispo RESCO (SLO RESCO) project was intended to inform local decision makers and in particular government officials regarding the available pathways to achieve RESCO goals on a community-wide scale.

# Specifics about community/facilities

- San Luis Obispo County is home to the Diablo Canyon Nuclear Reactor.
- Local interest in energy localization emerged organically based upon community interest, local organizing, and the support and participation of San Luis Obispo local governments in this work.
- This project was unique in the level of local participation in the research that was conducted, particularly regarding local renewable resources, many of which had not been surveyed before, including over a dozen local part-time staff that included both professors, graduate students and undergraduates at California Polytechnic University (CAL POLY).

# SLO RESCO Project Results

This project surveyed and assessed the *technical potential* for local renewable and demand-side resource development in a California county, delineating the options such a government has to influence or to directly control their community's energy supply: analyzes *gaps and barriers* to achieving RESCO goals focused on San Luis Obispo County, and proposes a *commercialization strategy and pathway* that may overcome many barriers to achieve those goals in the near-term.

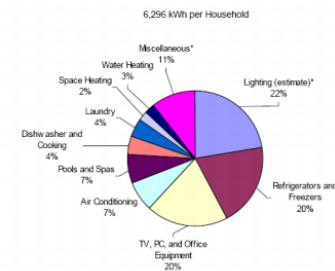
# Project Contents

- The project performed case studies of local distributed generation facilities and lessons learned were derived from each.
- A high-level survey of local renewable resources is included in this report, with more detailed studies of select end uses of solar and biomass generation potential.
- Significant local outreach was undertaken to form an advisory committee composed of local elected officials, activists, educators and business owners to educate the general public and key stakeholders and to inform the county's EnergyWise Action Plan (formerly the Climate Action Plan).
- An Energy Atlas was created to summarize the findings of the resource inventory of San Luis Obispo County as an outreach tool for the general public.

# Data Limitations. (No End-Use Data from PG&E that Sonoma County and other CCAs received)

- So, research focused on assessing local conservation and renewable resource development pathways based on existing law and available data

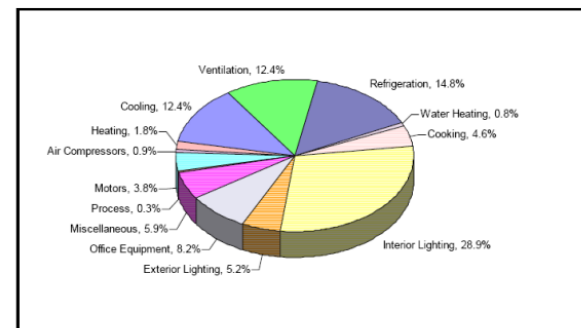
**Figure 89: Residential Electricity End-Use Consumption in California**



Source: 2010 California Residential Appliance Saturation Survey

As can be seen above in Figure 89, according to the 2010 California Residential Appliance Saturation Survey lighting accounted for 22 percent of the electricity consumption for the average California home.

**Figure 90: PG&E Commercial Electric Usage by End Use**



Source: 2006 California Commercial End-Use Survey



# Analysis of Optional Pathways

- Municipal Utilities (MUs)
- Municipal Utility Districts (MUDs)
- Public Utility Districts (PUDs)
- Irrigation Districts (IDs)
- Municipalization through Expansions or Partnerships
- Community Choice Aggregation (CCA& Joint Powers Agencies (JPAs)
- Comparison of Key Considerations for Municipalization and Community Choice
- Property Assessed Clean Energy (PACE) Financing
- EnergyWise Action Plan and General Plan
- Tailored Local Programs to Enable Distributed Energy Resources

# Power Planning & Policy Framework

- The Suspension of Deregulation
- Institutional Impact of the Energy Crisis
- Energy Planning in California
- Evolving Policy Considerations
- CAISO and CPUC Jurisdictional Conflicts
- Concerns over CAISO Planning
- The 'Missing Market' Debate
- Anti-Competitive Procurement Practices
- Alternative Providers of Retail Power Services
  - Direct Access
  - Community Choice Aggregation

# Barriers by Technology

Case Study	Policy	Finance	Technology	Markets	Environment
Geothermal Heat Pump, City of SLO	x	x	x	x	
CHP Microturbines, City of SLO WWTP	x	x	x	x	
Solar PPAs, Cal Poly and Atascadero Unified School District	x	x		x	
Green Corridor, Arroyo Grande	x	x		x	
Clean Energy Workforce Training Program, Cuesta College	x			x	
Solar Parking Lot, San Luis Coastal Unified School District		x			x

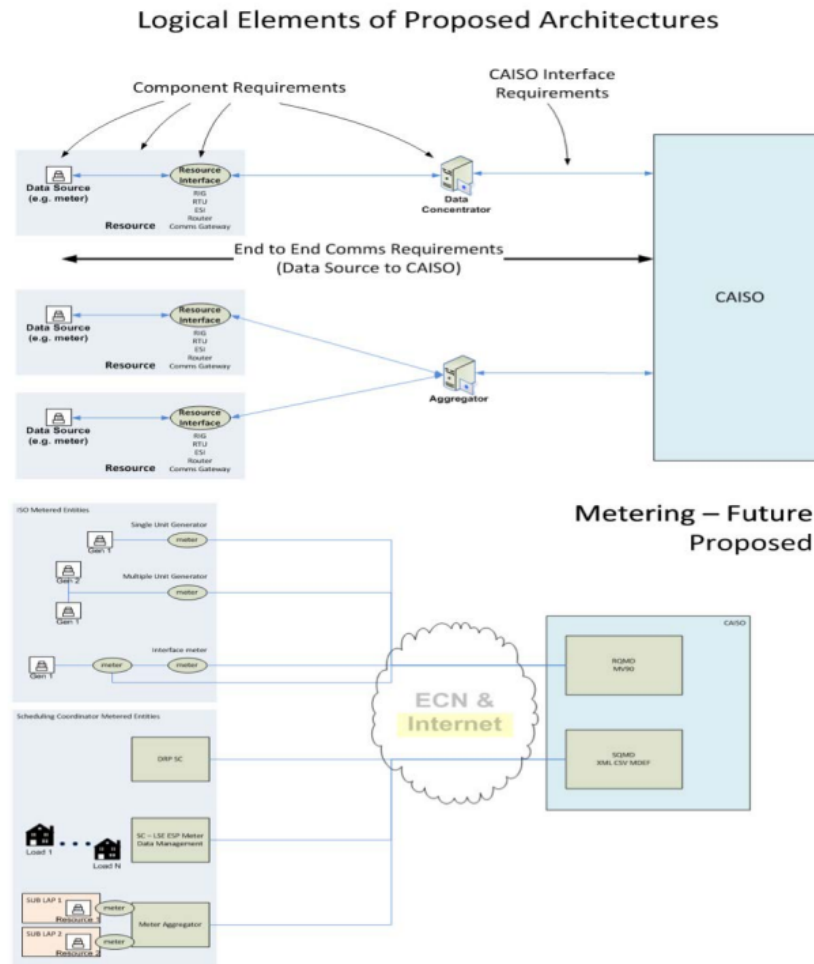
Source: Local Power Inc.

# Commercialization Pathways

<b>Does the authority enable the local government to:</b>	<b>CCA</b>	<b>POU</b>	<b>Status-Quo</b>
Influence local zoning, permitting, and land use considerations?	Yes	Yes	Yes
Provide technical and other assistance for deploying distributed energy resources?	Yes	Yes	Limited
Assume direct control over its community's power planning & operations?	Yes	Yes	No
Assume responsibility for the distribution grid?	No	Required	No
Issue revenue bonds to fund projects?	Yes	Yes	Limited
Fund generation projects cost-competitively (as compared to the incumbent utility)?	Yes	Yes	Limited
Integrate distributed energy resources into power planning & operations?	Yes	Yes	No
Access to customer-specific utility meter data?	Yes	Yes	No
Effectively implement without a referendum?	Yes	No	Yes
Implement in the near term (1-3 years)?	Yes	No	Yes

Source: Local Power Inc.

# Transacting DER: Telemetry/Metering



Local Power.

# Pathway: Municipal Utility or CCA

Type	Territory	Initiation Action(s)	LAFCO Review Required?	Popular Vote Required?
Community Choice Aggregation (CCA)	Single city or county, or multiple cities and/or counties under a JPA	Ordinance by local government(s)	No	No
Municipal Utility (MU)	Single city only, or multiple cities under a JPA (or county if authorized by state legislature)	Majority vote by city council(s)	No (unless county included)	Not for initiation (but majority vote required to issue revenue bonds for distribution acquisition)
Municipal Utility District (MUD)	City and unincorporated territory up to the entire County or multi-county	Majority public agency resolution or petition by 10% of voters	Yes	Majority vote with 2/3rds turnout of registered voters
Public Utility District (PUD)	Unincorporated territories only	15% of last voter turnout total petition	Yes	majority vote in each of the District's Unincorporated Territories
Irrigation District (ID)	Single city up to county or multi-county	Majority district landholder petition, or 500 resident voter petition	Yes	Majority vote

Source: California Municipal Utilities Association and Local Power Inc.

# Technologies

- Our project was conspicuously broad in the range of resources to be tapped, in and out of the electricity sector as conventionally defined, to include heat demand and water infrastructure as resources. Therefore, the data collection and analysis of local renewable resources was also unusually comprehensive.



# Pipeline Hydropower on Existing Water Agency Pipelines

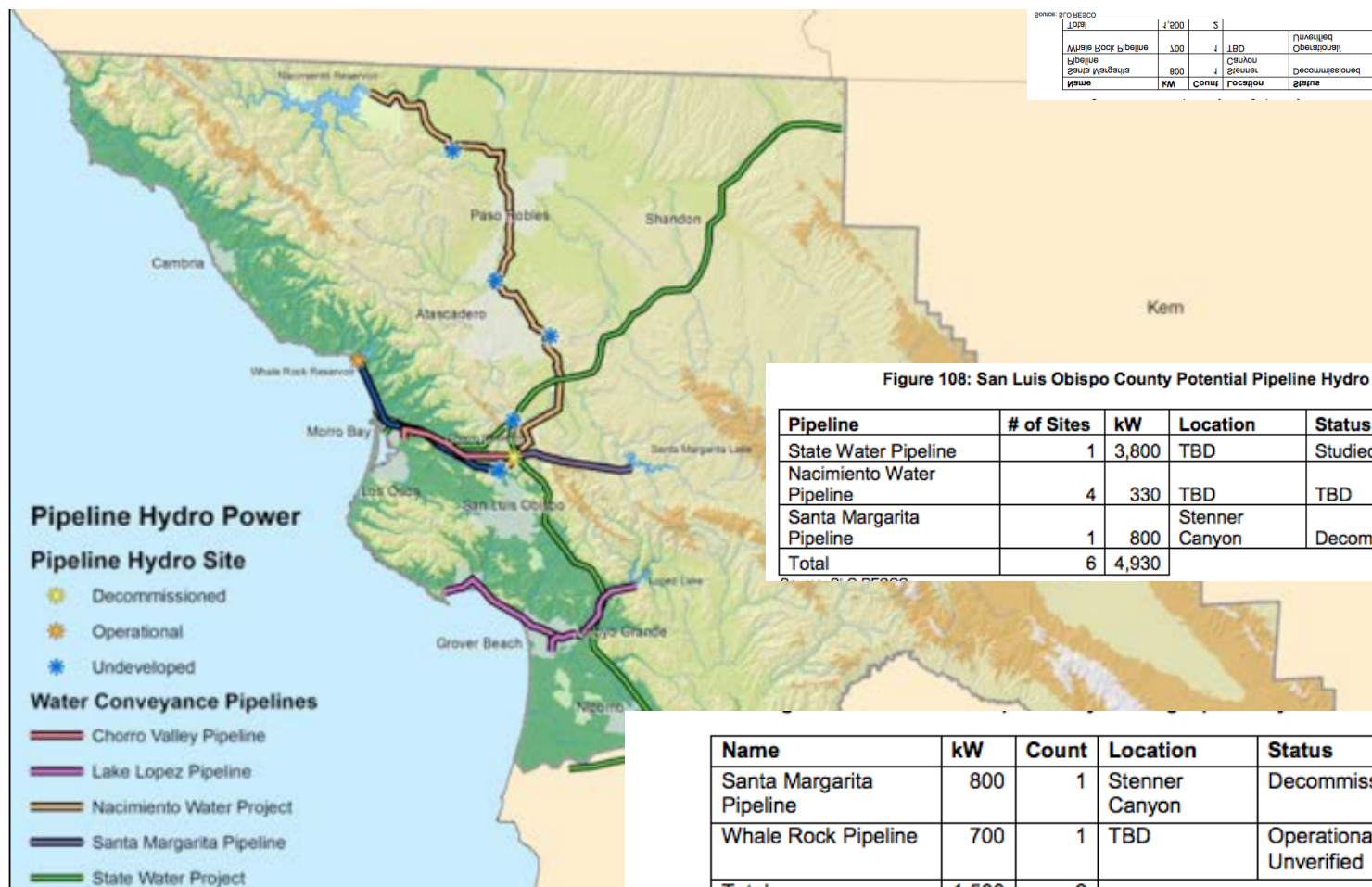


Figure 108: San Luis Obispo County Potential Pipeline Hydro Generators

Name	kW	Count	Location	Status
Santa Margarita Pipeline	800	1	Stenner Canyon	Decommissioned
Whale Rock Pipeline	700	1	TBD	Operational/ Unverified
Total	1,500	2		

Source: SLO RESCO

# Wastewater Treatment Plants & Landfills

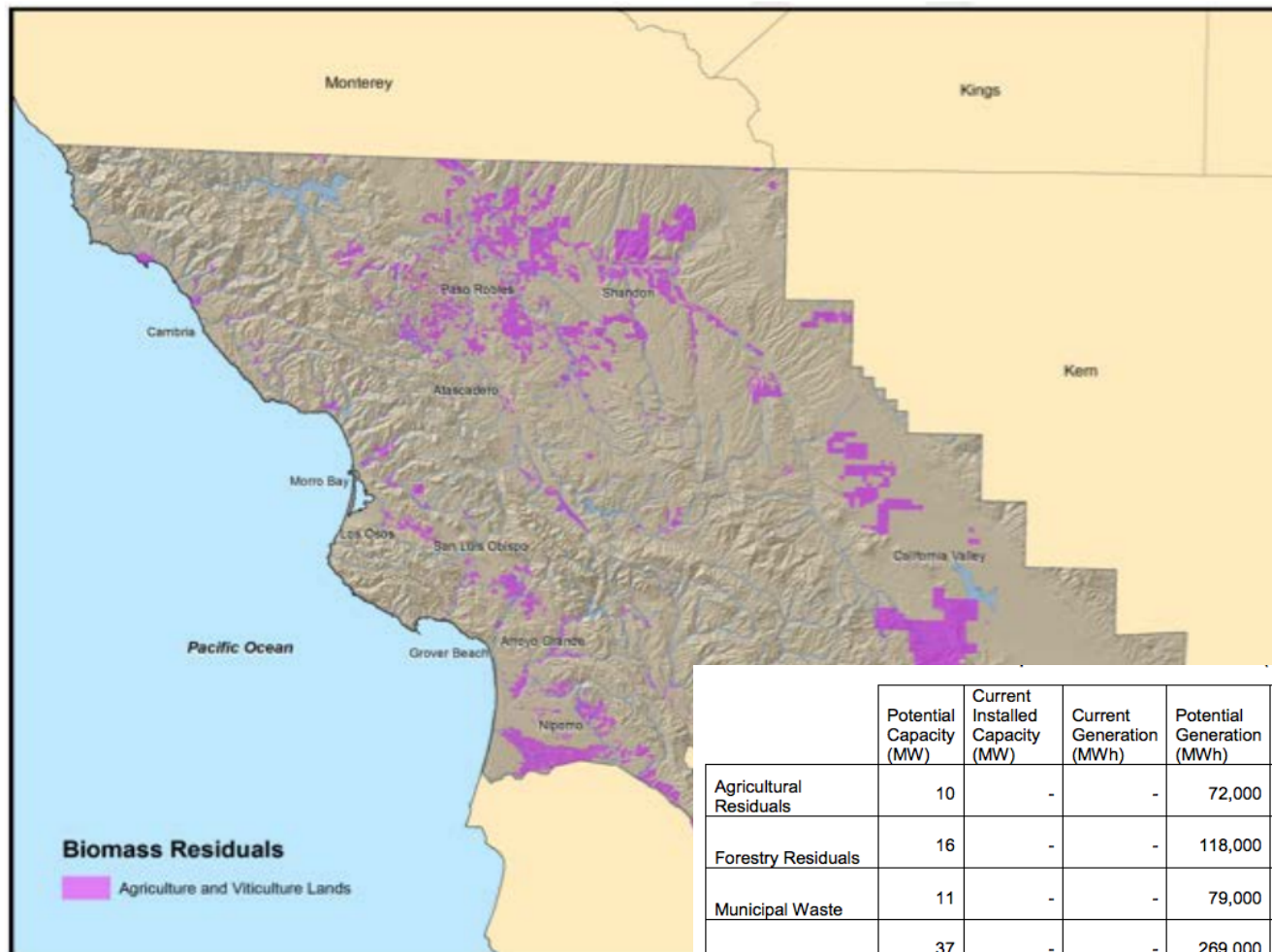


Wastewater Treatment Plant	Location	Capacity (million gallons/day)	Gas Control System
Landfill-3	Paso Robles	500	Flare
WWTP-1	South San Luis County	2.7	150 kW CHP
WWTP-2	Morro Bay / Cayucos	1.2	Direct Use
WWTP-3	Paso Robles	2.9	Flare**
WWTP-4	San Luis Obispo	4.5	Flare**
WWTP-5	Atascadero	1.6*	Flare
WWTP-6	Cambria	0.5	Flare
WWTP-7	Pismo Beach	1.1	Flare
WWTP-8	Camp Roberts	1.0*	Flare
WWTP-9	CA Men's Colony	1.2*	Flare
WWTP-10			

Landfill Site	Daily Permitted Capacity (Tons)	Landfill Gas Control & LFGTE Systems
Cold Canyon	1200	Active / LFGTE
Chicago Grade (with Nipomo Transfer Station)	700	Flaring / None
Paso Robles	500	Flaring / None

Services District		Sean Grauel: 805-927-6250	
Pismo Beach WWTP	City of Pismo Beach	550 Frady Lane Pismo Beach, 93449 Stuart Stewart: 805-773-7075	Pismo Beach
San Luis Obispo WWTP	City of SLO	25 Prado Rd. San Luis Obispo, 93401 David Hix: 805-781-7039	San Luis Obispo
Morro Bay/Cayucos WTP	City of Morro Bay	160 Atascadero Rd. Morro Bay, 93442 Bruce Keogh: 805-772-6272	Morro Bay
South San Luis County SD	South SLO CSD	1600 Aloha Place Oceano, 93445 Chuck Ellison: 805-489-6666	Oceano, Arroyo Grande, Grover Beach

# Existing Farm Biomass Waste



	Potential Capacity (MW)	Current Installed Capacity (MW)	Current Generation (MWh)	Potential Generation (MWh)	Share of County Usage (2020)	Avoided GHG Emissions (Tons)
Agricultural Residuals	10	-	-	72,000	3.8%	18,864
Forestry Residuals	16	-	-	118,000	6.3%	30,916
Municipal Waste	11	-	-	79,000	4.2%	20,698
<b>Total</b>	<b>37</b>	<b>-</b>	<b>-</b>	<b>269,000</b>	<b>14.3%</b>	<b>70,478</b>

Source: SLO RESCO

Source: SLO RESCO

# Best Local Types and Sites for Heat Capture (CHP) on Large Existing Natural Gas Boilers

Facility Name	Size Estimate (KW)	Location	Facilities Description	Thermal Demands	Size (sq. ft.)
Robert E. Kennedy Library, Cal Poly	250	1 Grand Ave San Luis Obispo, CA 93407	2,576,300 items	Air-Conditioning, Computers	208,433
Performing Arts Center, Cal Poly	100	1 Grand Ave San Luis Obispo, CA 93407	Roadhouse, seats 1,298		101,030
Recreation Center, Cal Poly	100	1 Grand Ave San Luis Obispo, CA 93407	Gym seats 4,000	Heated Pool, Air-Conditioning	90,337
Cuesta College	50		11,315 total enrollment (2008)	Heated Pool	
Men's Colony			6,512	Hospital, Dining	

Segment	MW	MWh	MWh-Thermal	Count (est.)
Large Office > 30,000 sq. ft.	5	37,230	62,227	50
College/Universities	3	22,338	37,336	3
Small Lodging (<100 rooms)	2.5	18,615	31,114	50
Health	2.5	18,615	31,114	5
Vineyards	2	14,892	24,891	20
Military Bases	2	14,892	24,891	2
Lodging (>100 rooms)	1	7,446	12,445	10
Prison	1	7,446	12,445	1
Waste Water Treatment Plants	0.7	5,212	8,712	7
High Schools	0.6	4,468	7,467	6

Facility Name	System Size Estimate (kW)	Location	Phone	Facility Description	Thermal Demands
Paso Robles Inn	50	1103 Spring Street Paso Robles, CA 93446	(805) 238-2660	98 Rooms, Executive Board Room,	Pool, Spa
SeaVenture Resort	30 (possibly too small)	100 Ocean View Avenue Pismo Beach, CA 93449	(805) 773-4994	50 Rooms, Banquet Room	Restaurant, Private Jacuzzis
TOTAL:	710				

Source: SLO RESCO



# Heating Retrofits: Residential and Commercial Rooftop Solar Thermal

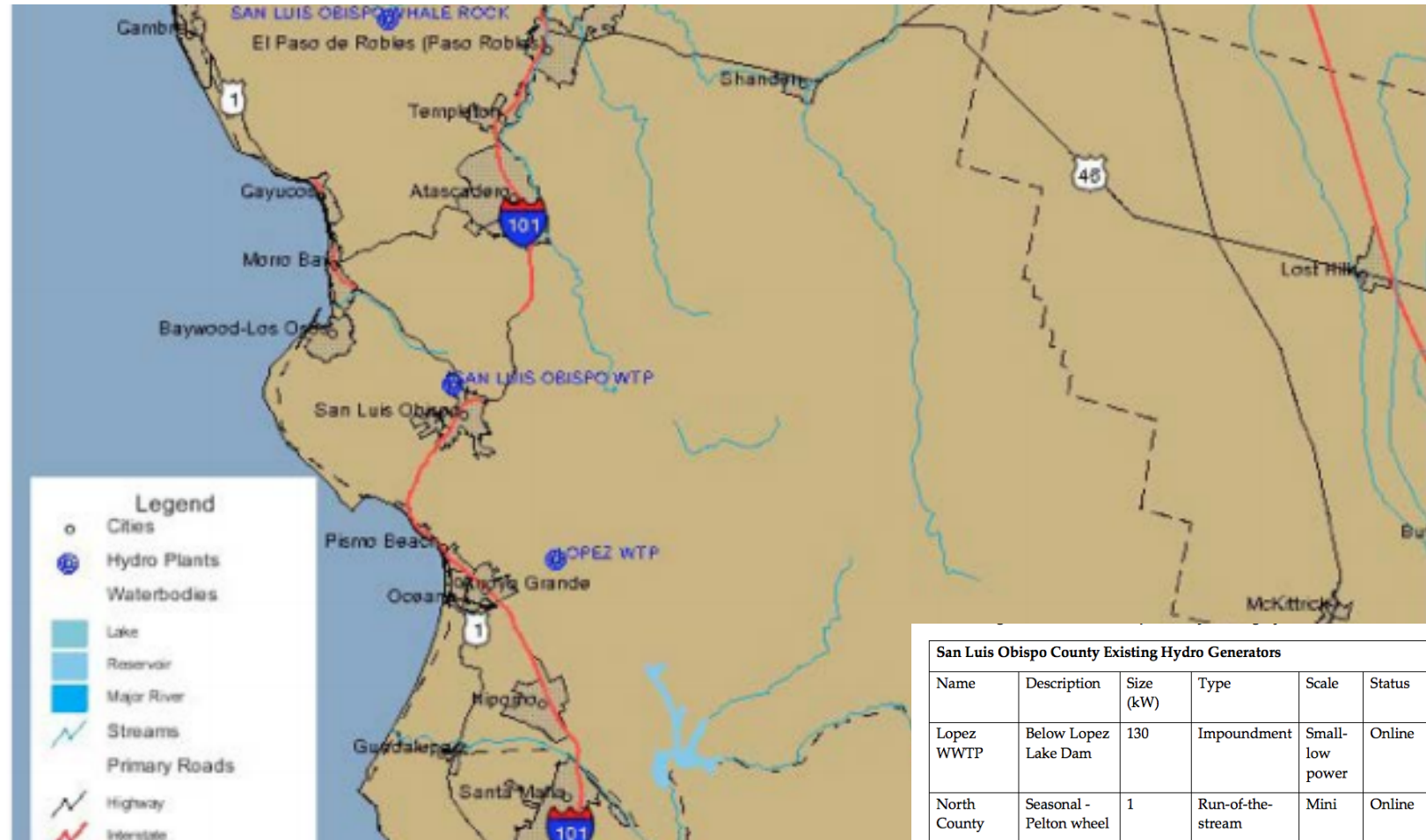


# Geothermal Power & Heat



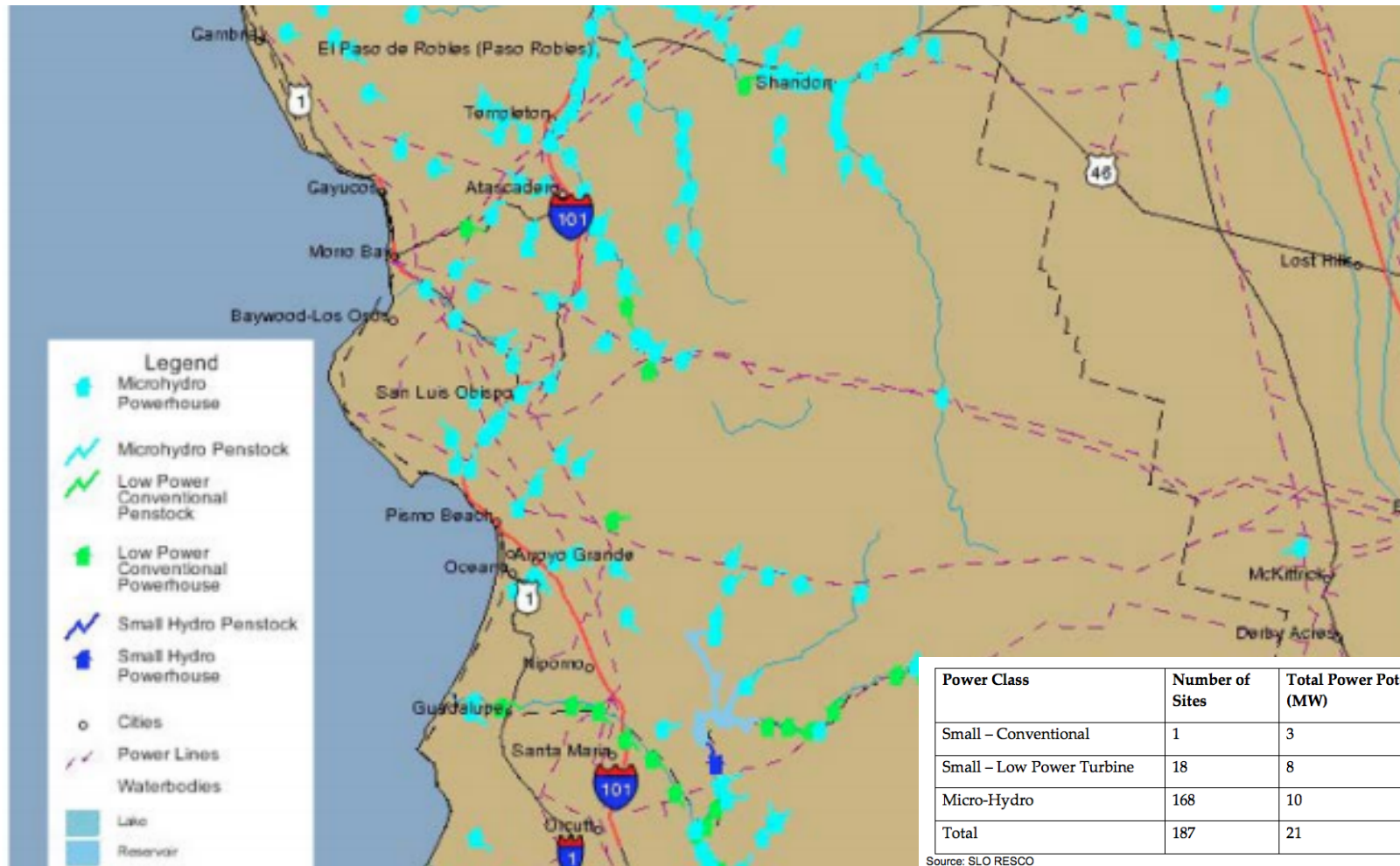
Source: California Energy Commission and SLO RESCO

# Existing Hydropower Facilities



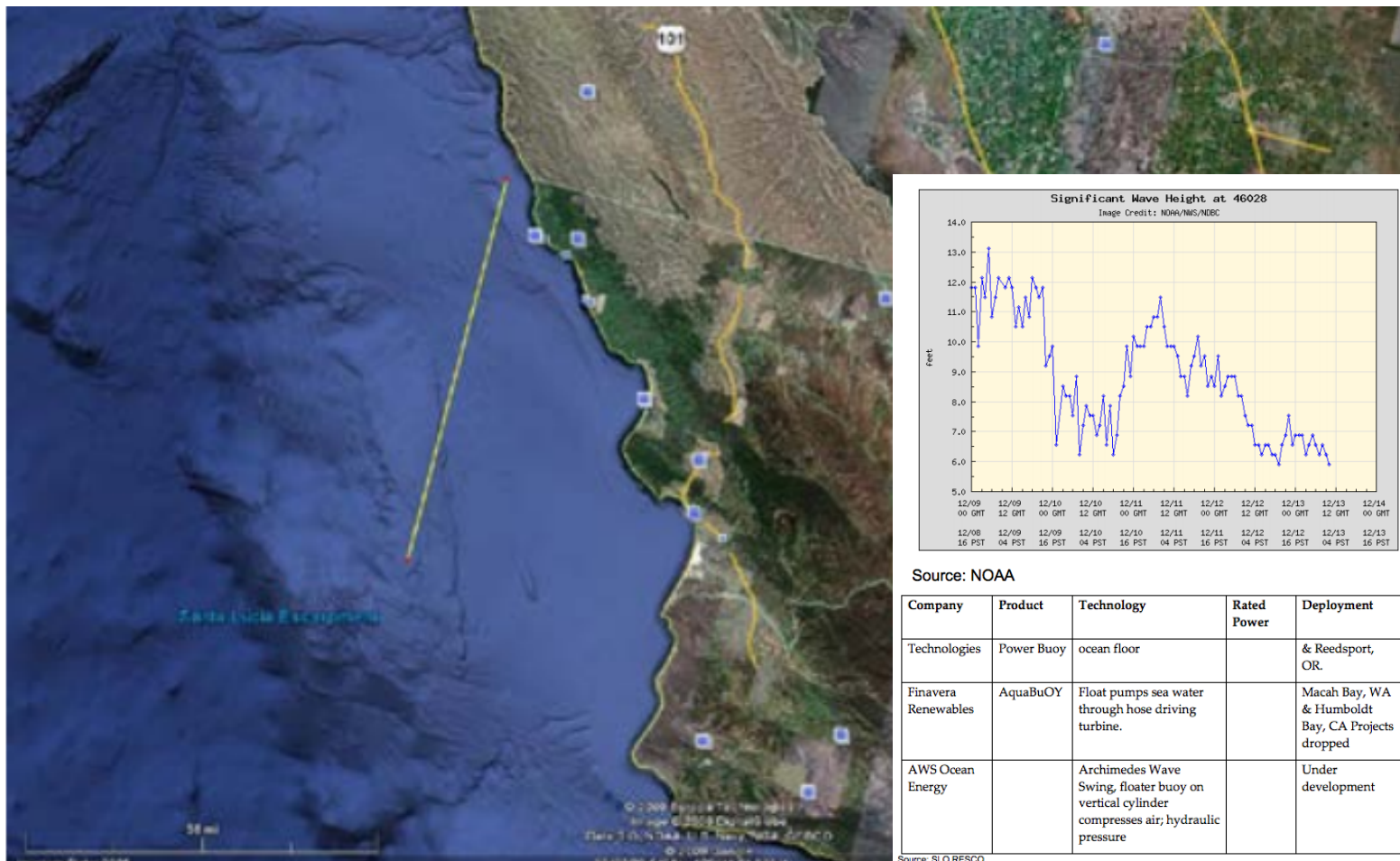


# And Distribution of Water



Local Power.

# 62 mile Ocean Wavefront for Wave Power



# What this project has led to for the community

- The San Luis Obispo City Council unanimously passed a resolution at its regular meeting Tuesday in support of exploring a community choice aggregation program with other interested municipalities such as other local cities and San Luis Obispo County.
- The Morro Bay City Council passed a similar resolution in September 2013.

# Planning Commission Support for CCA as RESCO-Type Platform Streamlining Program

Posted on March 28, 2014 by sloce — No Comments ↓





# City of San Luis Obispo Votes to Explore CCA April 2015

[Classifieds](#) [Jobs](#) [Cars](#) [Homes](#) [Apartments](#) [Place an Ad](#)  **78°** Forecast

 **THE TRIBUNE** [Subscriptions](#) | [Report News](#) | [Customer Service](#)

[HOME](#) **[NEWS](#)** [SPORTS](#) [OPINION](#) [LIVING](#) [ENTERTAINMENT](#) [TOURIST INFO](#) [LOCAL DEALS](#)

[News](#) > [Local News](#)

## City of SLO to look into buying power from renewable sources



**BY CYNTHIA LAMBERT**  
clambert@thetribunenews.com April 1, 2015

San Luis Obispo leaders this week indicated interest in exploring a program that allows communities to purchase alternative power supplies for their customers rather than the local utility's mix of energy sources.

Known as community choice aggregation, the program allows cities or counties to pool the electricity demand of residential and business customers and focus on carbon-free renewable power sources such as wind or solar, according to San Luis Obispo officials.

"I'm excited about this concept for our community," Councilman Dan Rivoire said. "I'm excited about the idea of introducing competition into our local marketplace, excited about the potential for savings for local residents and the extent to which our community could drive change on the types of energy that is produced in our state."

The [San Luis Obispo City Council](#) unanimously passed a resolution at its regular meeting Tuesday in support of exploring a community choice aggregation program with other interested municipalities such as other local cities and San Luis Obispo County.

The [Morro Bay City Council](#) passed a similar resolution in September 2013.

# Importance of Community Scale Energy & Research

- Communities are the Big Consumers that define both local needs, local resources and local political authority. Research on Community Energy is critical for the success of energy localization.

# No CCA Data: But Have DER Levelized Cost Data

In-Service Year = 2018 (Nominal 2018 \$/MWh)	Merchant Plants			Investor Owned Utilities			Publically Owned Utilities		
	Average	High	Low	Average	High	Low	Average	High	Low
Small Simple Cycle	1009.57	3377.72	319.82	792.48	2417.45	277.61	389.97	1657.84	217.33
Conventional Simple Cycle	951.58	3270.16	305.32	744.57	2347.17	265.92	370.05	1616.40	209.48
Advanced Simple Cycle	426.62	1239.82	170.17	356.36	940.45	153.54	250.98	710.16	130.12
Conventional Combined Cycle (CC)	168.93	305.79	87.66	158.18	270.93	84.09	149.91	245.29	79.13
Conventional CC - Duct Fired	173.41	321.20	89.51	161.91	282.89	85.77	153.00	254.63	80.56
Advanced Combined Cycle	156.23	280.61	83.73	146.60	249.66	80.33	139.22	226.95	75.59
Coal - IGCC	178.14	357.96	76.24	142.48	258.42	73.36	113.17	189.96	75.03
Nuclear Westinghouse AP1000 (2018)	342.41	931.92	180.01	273.07	630.30	158.42	166.85	332.17	113.67
Biomass IGCC	168.48	351.53	81.90	161.86	290.05	92.78	140.97	224.61	98.32
Biomass Combustion - Fluidized Bed Boiler	160.43	355.02	46.94	148.32	292.89	67.57	127.60	225.65	69.74
Biomass Combustion - Stoker Boiler	158.22	299.83	62.53	148.82	255.80	91.00	132.88	208.84	76.55
Geothermal - Binary	129.42	374.85	71.69	136.73	324.82	100.15	124.98	224.57	84.25
Geothermal - Flash	120.72	307.50	71.69	127.66	268.21	100.15	117.99	188.76	84.25
Hydro - Small Scale & Developed Sites	164.59	1081.37	31.68	159.84	885.18	32.83	120.27	567.29	36.35
Hydro - Capacity Upgrade of Existing Site	77.80	677.66	28.25	76.09	560.88	28.07	59.88	370.31	24.29
Ocean Wave (2018)	261.71	551.98	106.75	249.02	448.85	123.36	189.33	300.68	134.46
Solar - Parabolic Trough	298.64	627.68	122.32	288.92	506.07	154.50	256.13	368.03	174.72
Solar - Parabolic Trough with Storage	159.61	352.27	64.37	154.30	282.96	81.54	136.60	204.38	90.96
Solar - Photovoltaic (Single Axis)	305.50	635.65	130.79	295.43	512.14	167.74	261.57	371.97	191.27
Onshore Wind - Class 3/4	127.19	293.22	63.20	120.59	234.75	62.12	90.69	152.36	66.27
Onshore Wind - Class 5	114.06	300.06	45.06	108.27	240.12	51.59	82.02	155.65	54.40
Offshore Wind - Class 5 (2018)	214.16	468.07	95.06	202.78	375.37	110.32	151.21	244.69	120.12

Source: California Energy Commission, Electricity Analysis Office

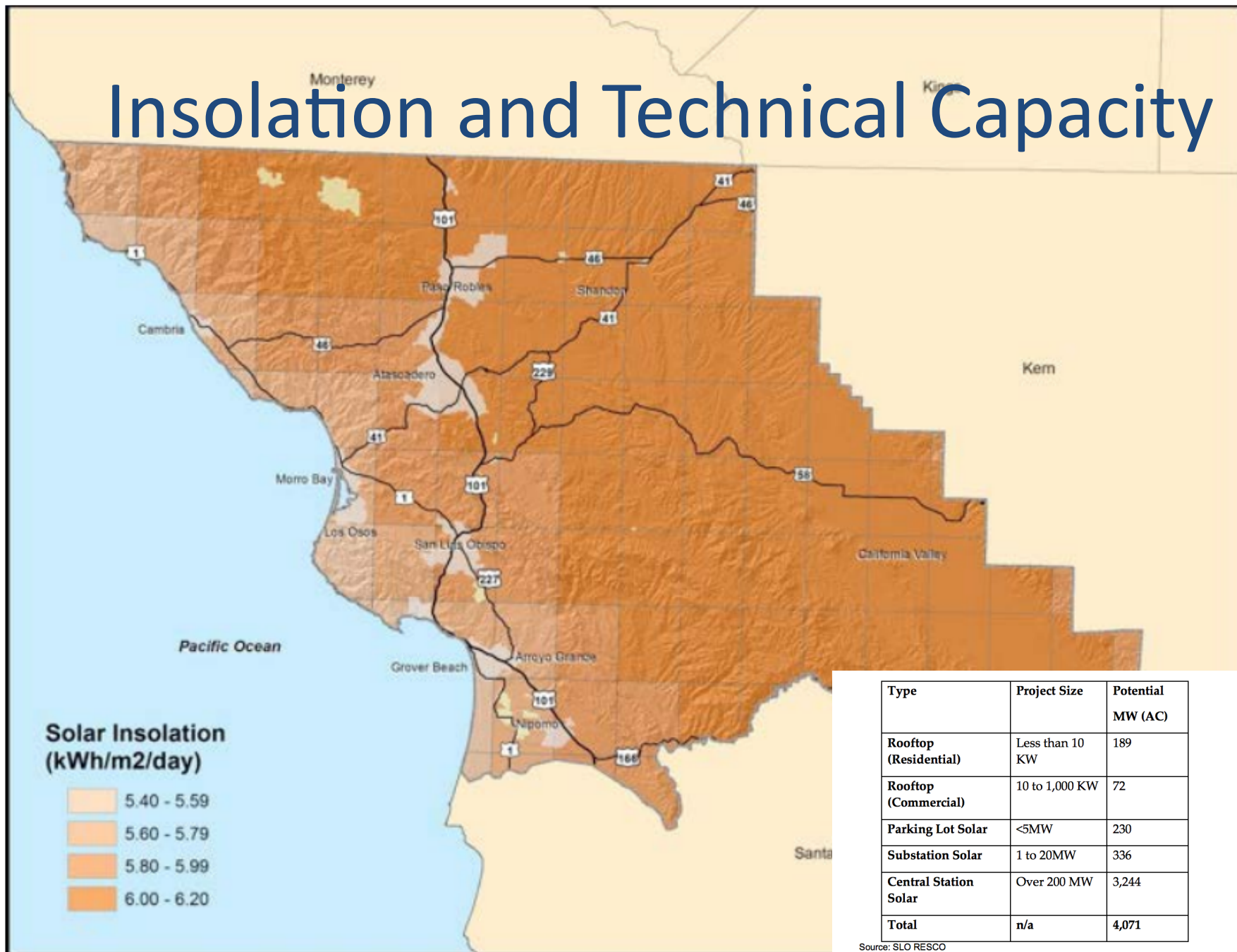


# DER Already in SLO County

Distributed Generation in SLO	Locations	Capacity (kW)
<b>Photovoltaics</b>		
Residential	1,678	7,361
Commercial	77	7,086
Government	16	5,942
Non-Profit	6	32
Unknown	4	269
Subtotal	1,781	20,690
<b>Advanced Energy Storage</b>		
Residential	2	10
Commercial	4	110
Subtotal	6	120
<b>Combined Heat and Power</b>		
Gas Turbine	1	1,383
Internal Combustion Engine	3	1,230
Microturbine	4	478
Subtotal	8	3,091
<b>Total Distributed Generation</b>	<b>1,795</b>	<b>23,901</b>

Source: California Energy Commission & California Public Utilities Commission, California Solar Initiative database, available from:[[http://www.californiasolarstatistics.ca.gov/current\\_data\\_files/](http://www.californiasolarstatistics.ca.gov/current_data_files/)]; California Public Utilities Commission, Self-Generation Incentive Program database (projects that are reserved, advancing, or completed), available upon request.

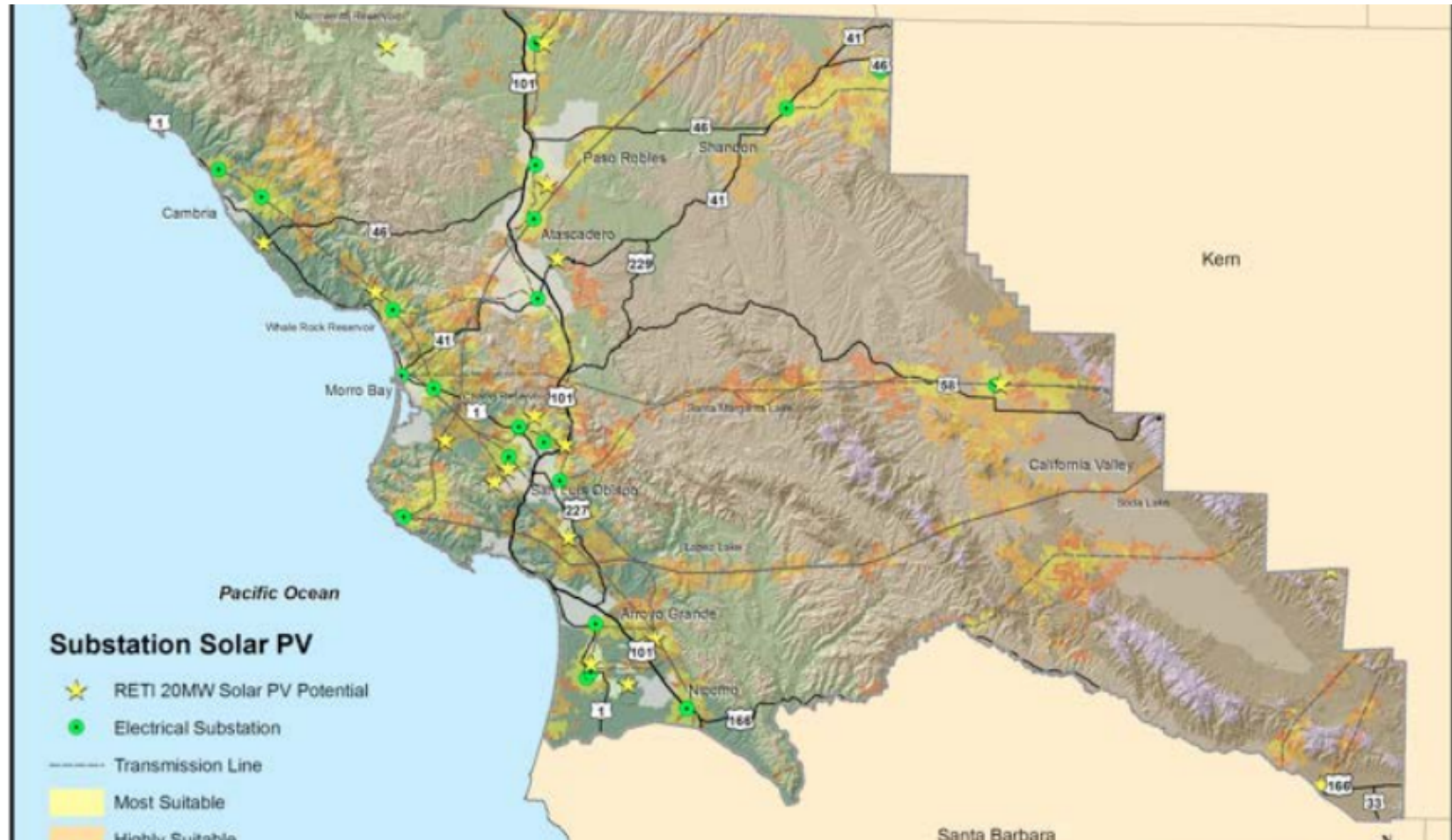
# Insolation and Technical Capacity



Source: SLO RESCO

Source:

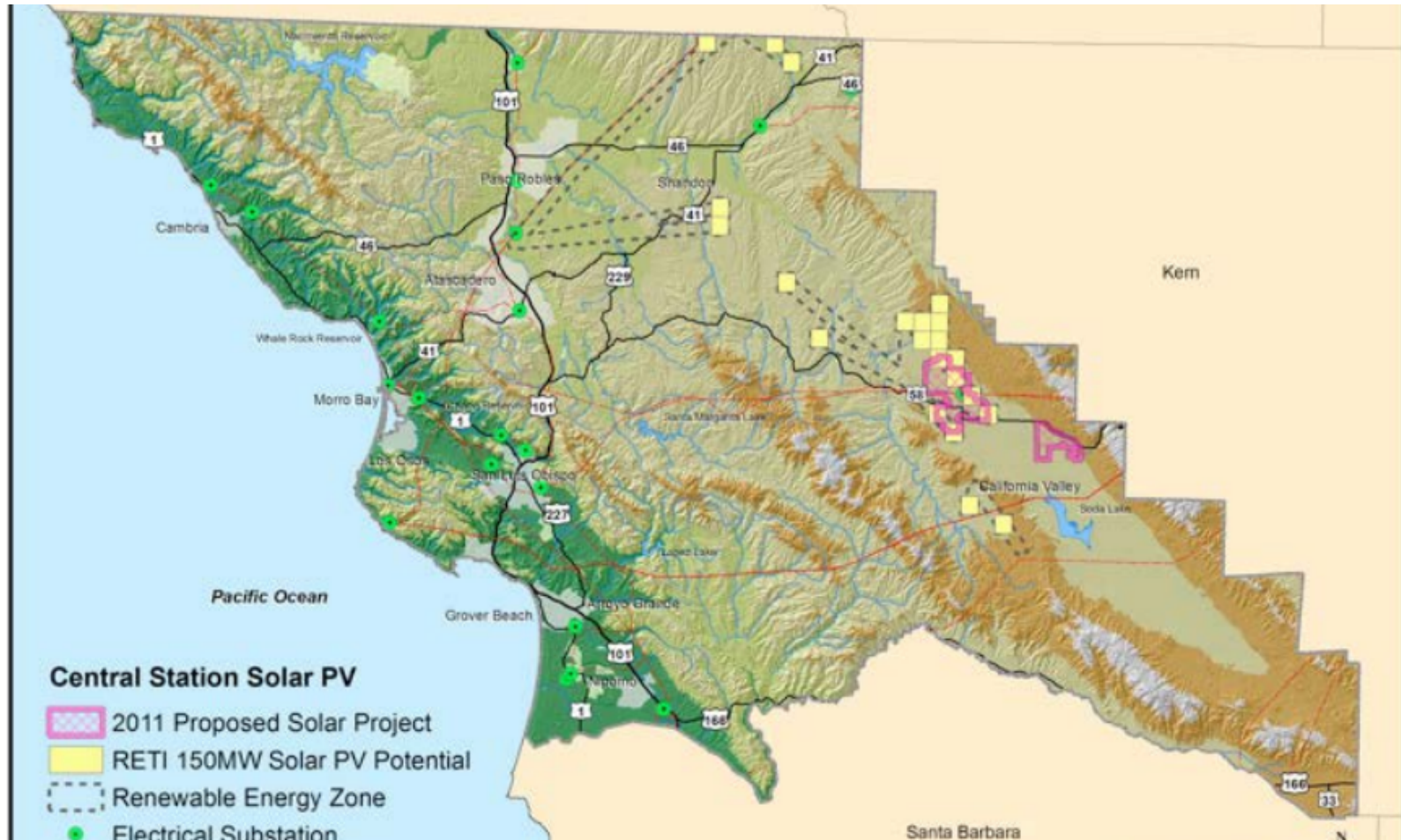
# Utility Local: Substations



Local Power.



# Centralized Local: Greenfield PV



Local Power.

# Local as Behind-Meter: Commercial PV



Local Power.

# Local as Residents: Behind Meter at Home



Local Power.



# Unique PV Opportunity: Parking Lot Complex in Paso Robles



Local Power.

# Local Utility-Scale Wind Potential

	<b>Capacity</b>	<b>MWh</b>	<b>Share of County Usage (2020)</b>	<b>Avoided GHG Emissions (Tons)</b>
Wind (24% Average Capacity Factor)	30	61,000	3.2%	15,982
Wind (15% Average Capacity Factor)	82	107,000	5.7%	28,034
Total	112	168,000	8.9%	44,016

# Local Wind Resources

Site Number	Site Name	Site Description	Wind Classes Identified at 230 ft.   70m
1	San Luis Obispo City South-East	Resource located on a ridge east of the intersection of Orcutt Rd. and Johnson Rd. in San Luis Obispo	3,4,5,6
2	West Cuesta Ridge TV Towers	Resource located along West Cuesta ridge off of TV Tower Road.	3,4
3	La Panza Range	Resource located in South Eastern San Luis Obispo County along the La Panza Range.	3,4,5,6
4	Diablo Canyon	Resource located on hillsides in the near vicinity of Diablo Canyon Nuclear Power Plant.	3,4
5	Hearst Castle	Resource located East of Hearst Castle .5 miles West of the Rocky Butte Truck Trail.	3,4,5
6	Santa Lucia Wilderness	Resource located West of the Hi Mountain Lookout in the Santa Lucia Wilderness.	3,4,5,6

Source: SLO RESCO

# Technically Feasible Wind Sites with Development Constraints

Site Number	Site Name	Road Access	Transmission Access	Exclusion Areas	Visibility
1	San Luis Obispo City South-East	Yes	Yes	Slope > 20%	High
2	West Cuesta Ridge TV	Uncertain	Yes	Enviro Yellow, Slope > 20%	High
Site Number	Site Name	Road Access	Transmission Access	Exclusion Areas	Visibility
	Towers				
3	La Panza Range	No	Yes	Enviro Black, Slope > 20%	Low
4	Diablo Canyon	Uncertain	Yes	Slope > 20%	Moderate
5	Hearst Castle	Uncertain	No	Slope > 20%	Moderate
6	Santa Lucia Wilderness	Uncertain	Yes	Enviro Black, Enviro Yellow, Slope > 20%	Moderate

Source: SLO RESCO

# Biomass Analysis

Biofuel Type	Higher Heating Value (BTU/lb., dry basis)
Majority of Orchard & Vineyard Crop Residuals	8597
Grape Residuals	8168
Corn Residuals	7587
Wheat Residuals	7527

Biofuel Type	Higher Heating Value (BTU/lb., dry basis)
Sorghum Residuals	6620
Potato Residuals	7738
Vegetable Crop Residuals	7738
Olive Processing Residuals	9195
Beef Cow Manure	7414
Horse Manure	6018
Forest Thinnings	9027
Paper/Cardboard Landfilled	7642
Food Waste Landfilled	6018
Dedicated Biomass Crops	8168

Source: SLO RESCO

# Alt. Transportation Fuel Sites as Resources

<b>Fuel Station Type</b>	<b>County Total</b>
Electric Charging	16
Biodiesel	1

<b>Fuel Station Type</b>	<b>County Total</b>
Compressed Natural Gas	2
Liquefied Petroleum Gas	4
Gasoline and/or Diesel	109
<b>Total</b>	<b>132</b>

Source: United States Department of Energy, Alternative Fuels Data Center, available from: [\[http://www.afdc.energy.gov/data\\_download/\]](http://www.afdc.energy.gov/data_download/); California Energy Commission, Retail Fuel Stations - Survey Responses and Estimated Totals by County, available from: [\[http://www.energyalmanac.ca.gov/gasoline/retail\\_fuel\\_outlet\\_survey/reporting\\_stations.html\]](http://www.energyalmanac.ca.gov/gasoline/retail_fuel_outlet_survey/reporting_stations.html).



# Large Scale Generation Plants Online or Under Construction in SLO County

PLANT NAME	MW	FACILITY	ONLINE	OWNER
Stunner Canyon	0.8	Hydroelectric	1985	City Of San Luis Obispo
San Luis Obispo	0.7	Hydroelectric	1985	City Of San Luis Obispo
Lopez WWTP	0.1	Hydroelectric	1984	San Luis Obispo County And Water Control District
Diablo Canyon	2,202	Nuclear	1985	Pacific Gas And Electric Company
Morro Bay	912	Natural Gas	1955	Dynergy Power And NRG Energy, Inc.
Koch California Ltd.	0.3	Natural Gas (CHP)	1985	[Blank]
Meridian	1.1	Solar	2010	Paso Robles Solar, LLC
Topaz Solar Farm	550	Solar	2015	MidAmerican Energy Holdings
California Valley Solar Ranch	250	Solar	2012	NRG Energy
<b>TOTAL</b>	<b>3,917</b>			

Source: California Energy Commission - California Operational Power Plants, .1MW and above - November 6, 2012 and Local Power Inc.

Local Power.

# Project Staff

- Primary Author(s) - Local Power Inc - Paul Fenn, Robert Freehling, Samuel Golding
- The SLO RESCO local project team: Eric Veium, Chad Worth, Ken Smokoska, Lorna Mosher, and Mark and Elana Shefrin.
- Contract Manager - Gail Wiggett, California Energy Commission

# Contact information

Paul Fenn, President

Local Power Inc.

[paulfenn@localpower.com](mailto:paulfenn@localpower.com)

(510) 451-1727x2